REMARKS

Claims 1, 5-7, 14-21, 24-35, and 37-40, all the claims pending in the application, stand rejected on prior art grounds. Claims 19, 34, and 39 stand rejected on informalities. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1, 4, and 8-10 stand rejected under 35 U.S.C. §103(b) as being unpatentable over Okuda 6,805,338 in view of Di Milia et al. 4,551,192. Claims 1, 4, and 8-10 stand rejected under 35 U.S.C. §103(b) as being unpatentable over Okuda '338. Claims 5-7, 11-21 and 24-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okuda in view of Di Milia and JP 06177141. Claims 34, 35, and 37-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okuda in view of Di Milia, JP 06177141, and Lund 5,643,044. Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Okuda and Di Milia

Applicants respectfully traverse this rejection because while Okuda teaches vacuum pins that are "independently axially movable" (col. 6, lines 5-6), Okuda does not teach or suggest pins that are connected to "individually controlled" height adjustment mechanisms as claimed. Just because an item is independently movable does not imply that it is individually controlled. With the claimed invention, the pins are independently movable and individually controlled, while in Okuda, the pins are only independently movable and are commonly controlled, not individually controlled. Further, the pins in Okuda are only adapted to reduce upward movement when any foreign matter particles are present and the pins in Okuda are not adapted to be individually controlled so as to change the shape of the device being held.

In Okuda, the pins are not individually controlled and instead are commonly controlled through the use of equal air pressure or biasing members, such as springs (col. 6, lines 6-10). The operation of the vacuum chuck in Okuda can be seen in Figure 6, where a particle 70 is between a pin 64a and the wafer 54. Because all the pins 64 are independently movable and are biased by equal air pressure or springs, only pin 64a that has the particle 70 moves slightly downward, while the other pins 64 remain at a higher level in direct contact with the wafer 54 (see col. 6, lines 43-57 for a complete discussion).

Therefore, Okuda allows the pins 64 to avoid standing fully extended when a particle 70 is positioned between a pin and the wafer through the use of the equal air pressure or biasing members. However, there is no mechanism in Okuda to allow individually controlled pins to move in a manner so as to change the shape of the device (wafer) being held because the pins merely press upward less when a particle is between a pin and the wafer. Therefore, Okuda does not teach or suggest the claimed feature whereby the pins or height adjustment mechanisms are individually controlled so as to "change a shape" of the device being held as defined by independent claim 1.

Also, the ability of the pins 64 to independently move in Okuda is subject to a common control, either through operation of the equal air pressure on all the pins or through the use of springs connected to all pins (the springs or biasing members will all exhibit the same form of common control on the pins because the springs will always push the pins upward as would the equal air pressure) again see col. 6, lines 6-10. There is no device or mechanism to provide individual control of the movable pins in Okuda.

To the contrary, each of the independent claims requires "individually controlled height adjustment mechanisms" (structure claim 1). As explained in paragraph 22 of the application, each individual pin height is adjusted through an interface between a computer and the individual electrostatic chuck pins. Therefore, because the height adjustment mechanisms are individually controlled in the claimed invention, they will not all uniformly just push upward as the pins 64 in Okuda do. To the contrary, the individually controlled height adjustment mechanisms move up or down depending solely upon the control signal applied. Because Okdua utilizes a common control (through air pressure or springs) none of the pins are individually controlled (even though

each is independently movable) and, therefore, Okuda does not teach or suggest the claim limitation of "individually controlled height adjustment mechanisms" (structure claim 1).

De Milia is utilized exclusively to demonstrate that electrostatic chucks are known and is not offered for any teaching of individually controlled height adjustment mechanisms. Applicants respectfully disagree with the obviousness conclusion in the Office Action because one ordinarily skilled in the art would understand that electrostatic chucks normally operate within vacuum chambers, and that the air pressure scheme described by Okuda would fail within a vacuum chamber. Therefore, the proposed combination of Okuda and De Milia would destroy the ability of the structure in Okuda to operate. Therefore, the proposed combination would not have been made by one ordinarily skilled in the art.

Thus, as shown above, the references would not have been combined and, even if they were combined, they do not provide a teaching of "individually controlled height adjustment mechanisms" that can "change a shape" of the device being held (structure claim 1). Therefore, independent claim 1 is patentable over the proposed combination of references. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Rejection Based on Okuda

Applicants respectfully traverse this rejection because while Okuda teaches vacuum pins that are "independently axially movable" (col. 6, lines 5-6), Okuda does not teach or suggest pins that are connected to "individually controlled" height adjustment mechanisms as claimed. Just because an item is independently movable does not imply that it is individually controlled. With the claimed invention, the pins are independently movable and individually controlled, while in Okuda, the pins are only independently movable and are commonly controlled, not individually controlled.

In Okuda, the pins are not individually controlled and instead are commonly controlled through the use of equal air pressure or biasing members, such as springs (col. 6, lines 6-10). The operation of the vacuum chuck in Okuda can be seen in Figure 6, where a particle 70 is between a pin 64a and the wafer 54. Because all the pins 64 are

independently movable and are biased by equal air pressure or springs, only pin 64a that has the particle 70 moves slightly downward, while the other pins 64 remain at a higher level in direct contact with the wafer 54 (see col. 6, lines 43-57 for a complete discussion).

Therefore, only Okuda allows the pins 64 to avoid standing fully extended when a particle 70 is positioned between a pin and the wafer through the use of the equal air pressure or biasing members. However, there is no mechanism in Okuda to allow individually controlled pins to move in a manner so as to change the shape of the device (wafer) being held because the pins merely press upward less when a particle is between a pin and the wafer. Therefore, Okuda does not teach or suggest the claimed feature whereby the pins or height adjustment mechanisms are individually controlled so as to "change a shape" of the device being held as defined by independent claim 1.

The ability of the pins 64 to independently move in Okuda is subject to a common control, either through operation of the equal air pressure on all the pins or through the use of springs connected to all pins (the springs or biasing members will all exhibit the same form of common control on the pins because the springs will always push the pins upward as would the equal air pressure) again see col. 6, lines 6-10. There is no device or mechanism to provide individual control of the movable pins in Okuda.

To the contrary, each of the independent claims requires "individually controlled height adjustment mechanisms" (structure claim 1). As explained in paragraph 22 of the application, each individual pin height is adjusted through an interface between a computer and the individual electrostatic chuck pins. Therefore, because the height adjustment mechanisms are individually controlled in the claimed invention, they will not all uniformly just push upward as the pins 64 in Okuda do. To the contrary, the individually controlled height adjustment mechanisms move up or down depending solely upon the control signal applied. Because Okdua utilizes a common control (through air pressure or springs) none of the pins are individually controlled (even though each is independently movable) and, therefore, Okuda does not teach or suggest the claim limitation of "individually controlled height adjustment mechanisms" (structure claim 1).

Thus, as shown above, the reference does not provide a teaching of "individually controlled height adjustment mechanisms" (structure claim 1). Therefore, independent

claim 1 is patentable over the applied prior art. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The Rejection Based on Okuda in view of Di Milia and JP 6-177141

The teachings of JP06177141 add little to the teachings of Okuda with respect to the claimed ability of the invention to "change a shape" of the device being held by the electrostatic chuck because, as explained in greater detail below, Okuda only teaches that the pins should extend less when a particle is present, and JP06177141 teaches that the pins should be adjusted so as to change the distance between a heating element and a wafer. Neither reference teaches or suggests individually controlling pins so as to change the shape of the device (wafer) being held by the chuck.

JP06177141 is utilized to demonstrate adjusting heights of supporting points individually using piezoelectric units, and discloses various measurement tools. More specifically, in JP06177141 the height of supporting points 13a are adjusted to maintain a proper distance between a wafer 11 and a heating stage 12. A controller 19 controls the distance between the heating stage 12 and the wafer 11 depending upon distance or temperature measurements. The wafer 11 rests upon the supporting points 13a and is not held on the supporting points by any force other than gravity. As the supporting points 13a move up and down individually, different portions of the wafer 11 are moved different distances from the heating stage 12. However, no movement of the supporting points 13a will change the shape of the wafer as in the claimed invention.

As an initial observation, one ordinarily skilled in the art would not combine teachings of JP06177141 with those of Okuda and/or De Milia because while Okuda and De Milia deal with vacuum or electrostatic chucks, JP06177141 is related to a different art field of supporting wafers within a heating furnace. Therefore, there is no motivation to combine teachings of JP06177141 with Okuda and/or De Milia because they lie in different art fields.

Further, the teachings of JP06177141 add little to the teachings of Okuda with respect to the claimed ability of the invention to "change a shape" of the device being held by the electrostatic chuck because Okuda only teaches that the pins should extend

less when a particle is present, and JP06177141 teaches is that the pins should extend more or less so as to change the distance between the heating element 12 and a wafer. Neither reference teaches or suggests individually controlling pins so as to change the shape of the device (wafer) being held by the chuck. Okuda does not teach individual control of the pins. JP06177141 appears to individually adjust the height of the supporting points to make the temperature on the surface of the wafer uniform and the only measurements taken in JP06177141 relate to temperature and the distance between the heating device and wafer. Nowhere in such teachings is there a suggestion that the flatness of the wafer should be measured or that the electrostatic pins should be individually controlled so as to change the shape of the device being held.

While Okuda teaches vacuum pins that are "independently axially movable" (col. 6, lines 5-6), Okuda does not teach or suggest pins that are connected to "individually controlled" height adjustment mechanisms as claimed. Just because an item is independently movable does not imply that it is individually controlled. With the claimed invention, the pins are independently movable and individually controlled, while in Okuda, the pins are only independently movable and are commonly controlled, not individually controlled.

In Okuda, the pins are not individually controlled and instead are commonly controlled through the use of equal air pressure or biasing members, such as springs (col. 6, lines 6-10). The operation of the vacuum chuck in Okuda can be seen in Figure 6, where a particle 70 is between a pin 64a and the wafer 54. Because all the pins 64 are independently movable and are biased by equal air pressure or springs, only pin 64a that has the particle 70 moves slightly downward, while the other pins 64 remain at a higher level in direct contact with the wafer 54 (see col. 6, lines 43-57 for a complete discussion).

Therefore, only Okuda allows the pins 64 to avoid standing fully extended when a particle 70 is positioned between a pin and the wafer through the use of the equal air pressure or biasing members. However, there is no mechanism in Okuda to allow individually controlled pins to move in a manner so as to change the shape of the device (wafer) being held because the pins merely press upward less when a particle is between a pin and the wafer. Therefore, Okuda does not teach or suggest the claimed feature

whereby the pins or height adjustment mechanisms are individually controlled so as to "change a shape" of the device being held as defined by independent claims 1, 14, 17, 21, 24, and 28.

The ability of the pins 64 to independently move in Okuda is subject to a common control, either through operation of the equal air pressure on all the pins or through the use of springs connected to all pins (the springs or biasing members will all exhibit the same form of common control on the pins because the springs will always push the pins upward as would the equal air pressure) again see col. 6, lines 6-10. There is no device or mechanism to provide individual control of the movable pins in Okuda.

To the contrary, each of the independent claims requires "individually controlled height adjustment mechanisms" (structure claims 1, 14, 17, 21, and 24) or "individually controlling each" height adjustment mechanism or pin (method claim 28). As explained in paragraph 22 of the application, each individual pin height is adjusted through an interface between a computer and the individual electrostatic chuck pins. Therefore, because the height adjustment mechanisms are individually controlled in the claimed invention, they will not all uniformly just push upward as the pins 64 in Okuda do. To the contrary, the individually controlled height adjustment mechanisms move up or down depending solely upon the control signal applied. Because Okdua utilizes a common control (through air pressure or springs) none of the pins are individually controlled (even though each is independently movable) and, therefore, Okuda does not teach or suggest the claim limitation of "individually controlled height adjustment mechanisms" (structure claims 1, 14, 17, 21, and 24) or "individually controlling each" height adjustment mechanism or pin (method claim 28).

De Milia is utilized exclusively to demonstrate that electrostatic chucks are known and is not offered for any teaching of individually controlled height adjustment mechanisms. Applicants respectfully disagree with the obviousness conclusion in the Office Action because one ordinarily skilled in the art would understand that electrostatic chucks normally operate within vacuum chambers, and that the air pressure scheme described by Okuda would fail within a vacuum chamber. Therefore, the proposed combination of Okuda and De Milia would destroy the ability of the structure in Okuda

to operate. Therefore, the proposed combination would not have been made by one ordinarily skilled in the art.

Thus, as shown above, the references would not have been combined and, even if they were combined, they do not provide a teaching of "individually controlled height adjustment mechanisms" that can "change a shape" of the device being held (structure claims 1, 8, 14, 17, 21, and 24) or "individually controlling each" height adjustment mechanism or pin to "change a shape" of the device being held (method claims 28). Therefore, independent claims 1, 8, 14, 17, 21, 24, 28, 34, and 35 are patentable over the proposed combination of references. Similarly, dependent claims 5-7, 15, 16, 18-20, 25-27, and 29-33 are patentable, not only because they depend from a patentable independent claim, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

D. The Rejection Based on Okuda, Di Milia, and Lund

Applicants respectfully traverse this rejection because while Okuda teaches vacuum pins that are "independently axially movable" (col. 6, lines 5-6), Okuda does not teach or suggest pins that are connected to "individually controlled" height adjustment mechanisms as claimed. Just because an item is independently movable does not imply that it is individually controlled. With the claimed invention, the pins are independently movable and individually controlled, while in Okuda, the pins are only independently movable and are commonly controlled, not individually controlled.

In Okuda, the pins are not individually controlled and instead are commonly controlled through the use of equal air pressure or biasing members, such as springs (col. 6, lines 6-10). The operation of the vacuum chuck in Okuda can be seen in Figure 6, where a particle 70 is between a pin 64a and the wafer 54. Because all the pins 64 are independently movable and are biased by equal air pressure or springs, only pin 64a that has the particle 70 moves slightly downward, while the other pins 64 remain at a higher level in direct contact with the wafer 54 (see col. 6, lines 43-57 for a complete discussion).

Therefore, only Okuda only allows the pins 64 to avoid standing fully extended when a particle 70 is positioned between a pin and the wafer through the use of the equal air pressure or biasing members. However, there is no mechanism in Okuda to allow individually controlled pins to move in a manner so as to change the shape of the device (wafer) being held because the pins merely press upward less when a particle is between a pin and the wafer. Therefore, Okuda does not teach or suggest the claimed feature whereby the pins or height adjustment mechanisms are individually controlled so as to "change a shape" of the device being held as defined by independent claims 34 and 35.

The ability of the pins 64 to independently move in Okuda is subject to a common control, either through operation of the equal air pressure on all the pins or through the use of springs connected to all pins (the springs or biasing members will all exhibit the same form of common control on the pins because the springs will always push the pins upward as would the equal air pressure) again see col. 6, lines 6-10. There is no device or mechanism to provide individual control of the movable pins in Okuda.

To the contrary, each of the independent claims requires "individually controlling each" height adjustment mechanism or pin (method claims 34 and 35). As explained in paragraph 22 of the application, each individual pin height is adjusted through an interface between a computer and the individual electrostatic chuck pins. Therefore, because the height adjustment mechanisms are individually controlled in the claimed invention, they will not all uniformly just push upward as the pins 64 in Okuda do. To the contrary, the individually controlled height adjustment mechanisms move up or down depending solely upon the control signal applied. Because Okdua utilizes a common control (through air pressure or springs) none of the pins are individually controlled (even though each is independently movable) and, therefore, Okuda does not teach or suggest the claim limitation of "individually controlling each" height adjustment mechanism or pin (method claims 34 and 35).

De Milia is utilized exclusively to demonstrate that electrostatic chucks are known and is not offered for any teaching of individually controlled height adjustment mechanisms or for using individually controlled height mechanisms to change the shape of the device being held. Applicants respectfully disagree with the obviousness conclusion in the Office Action because one ordinarily skilled in the art would

understand that electrostatic chucks normally operate within vacuum chambers, and that the air pressure scheme described by Okuda would fail within a vacuum chamber. Therefore, the proposed combination of Okuda and De Milia would destroy the ability of the structure in Okuda to operate. Therefore, the proposed combination would not have been made by one ordinarily skilled in the art, and even if combination had been made, it would not teach or suggest the claimed invention.

Similarly, Lund is utilized exclusively to demonstrate that interferometers and computers were known and is not offered for any teaching of individually controlled height adjustment mechanisms or for using individually controlled height mechanisms to change the shape of the device being held. Applicants respectfully disagree with the obviousness conclusion in the Office Action because there is no motivation within Okuda, De Milia, or Lund for utilizing the interferometers of Lund within the structures shown in Okuda or De Milia. Therefore, the proposed combination would not have been made by one ordinarily skilled in the art, and even if the combination had been made, it would not teach or suggest the claimed invention.

Thus, as shown above, the references would not have been combined and, even if they were combined, they do not provide a teaching of "individually controlling each" height adjustment mechanism or pin to "change a shape" of the device being held (method claims 34, and 35). Therefore, independent claims 34 and 35 are patentable over the proposed combination of references. Similarly, dependent claims 37-40 are patentable, not only because they depend from a patentable independent claim, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II. Formal Matters and Conclusion

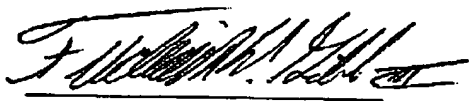
As mentioned above, claims 19, 34, and 39 stand rejected on informalities. Each of claims 19, 34, and 39 has been changed to provide proper antecedent basis for the terms defined therein. Therefore, the Examiner is requested to reconsider and withdraw the claim objections.

In view of the foregoing, Applicants submit that claims 1, 5-7, 14-21, 24-35, and 37-40, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,



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